



Orange
County
Beekeepers
Association

Bee School

Getting Started Resource Listing

Books

Beekeeper's Handbook - Diana Sammataro and Alphonse Avitabile, ISBN: 0801485037

A comprehensive well-illustrated introduction for beginners and a valuable reference for the experienced beekeeper.

The Hive and the Honey Bee - Dadant & Sons, available at www.dadant.com

The latest edition of the classic book on beekeeping. Completely rewritten, revised and enlarged. The best reference book on honey bees and beekeeping. 22 chapters, 33 world-famous authors, hundreds of photos and drawings, clothbound with attractive gold stamped cover and spine, and many special features: new 52-page U.S. and Canadian honey plants table, updated Africanized honey bee information, parasitic bee mites management, business practices, marketing, hive products, bee behavior, pesticides, and more.

The ABC & XYZ of Bee Culture: An Encyclopedia Pertaining to the Scientific and Practical Culture of Honey Bees - Ann Harman, et al., ISBN: 093602822X



Beekeeping is a very enjoyable and rewarding pastime that is relatively inexpensive to get started. Moreover, it's a hobby that can eventually make you money! The following is a primer on how to start your first hive and begin keeping bees.

BASIC HIVE EQUIPMENT

The minimum amount of equipment you will need to become a beekeepers is one complete 'starter' hive, which consists of a *bottom board* (the hive "floor"), a *hive body* (the main box) with 10 *frames* (on which the bees build wax comb), an *inner cover* (the hive "ceiling"), and a *lid* (the hive "roof") (see Figure 1). A colony of bees can live very successfully in such a hive and can store enough honey for its own needs. They may quickly out grow this space, however, and produce a swarm (where approximately half of the bees will fly away to start a new colony). To keep the bees from swarming, and to harvest their surplus honey, you will likely need additional hive equipment. But if you don't want to collect honey, then a starter hive is all the equipment you will ever need.

Most beekeepers are not content with watching half of their bees fly away, and so they will try to prevent this from happening by furnishing more hive space in the form of additional boxes, called '*supers*', on top of the original box. This gives the colony more space to grow and the bees more room to store honey. If you wish to remove honey from the hive, adding supers is a necessity.

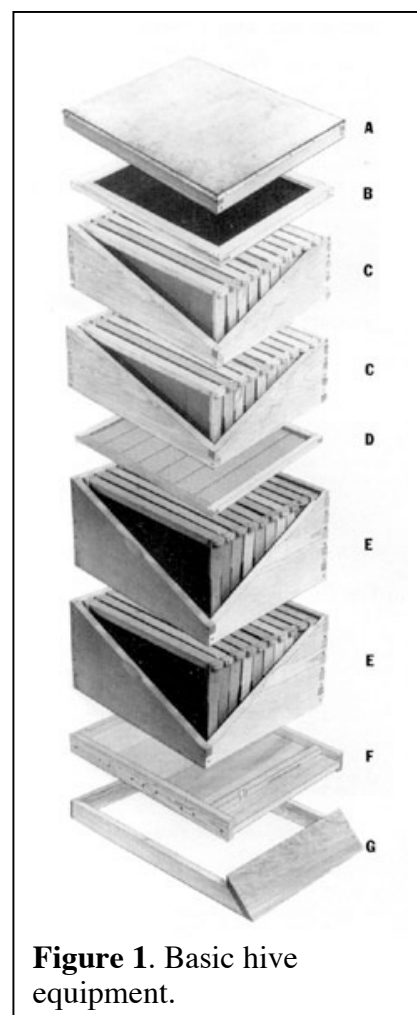


Figure 1. Basic hive equipment.

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Figure 2. Top. An assembled 'starter' hive. Bottom. Beekeeping gear: hive tool, smoker, and veil.

We recommend that a first-time beekeeper start with two full beehives. That way, you will have a minimal frame of reference to compare your new colonies and to develop your management techniques.

In addition to furnishing a beehive, you will also need some other equipment. There are three items that are required to safely work a beehive: a *smoker* (to pacify the bees and reduce their defense response), a *hive tool* (to pry apart hive equipment and frames), and a *veil* (to protect the head and face). Beginners often feel more comfortable with the extra protection of a full-body beekeeping *suit* and *gloves*, but eventually they are not necessary if the bees are handled properly.

GETTING STARTED

Equipment is available from any one of several beekeeping supply companies (listed below) and may be purchased in a variety of ways. Most companies have 'starter

kits', which usually include a complete starter hive (without bees), smoker, hive tool, and veil (see Figure 2). There are also 'deluxe kits', which include the previously mentioned items, as well as additional equipment to add to the hive as the colony population grows. The prices of these kits range from about \$125.00 for the starter hive to about \$325.00 for a deluxe kit. You can also buy the individual (pre-cut) parts of the hive and assemble it yourself (listed in Table 1).

Once a hive is assembled, it is ready to house bees. There are three main ways to acquire a living honey bee colony. First, you may purchase a five-frame 'nucleus' colony (or "nuc box") from a local beekeeper who is registered to sell bees (contact the North Carolina Department of Agriculture and Consumer Services for a current listing; see below). A nuc box usually contains five frames of 10,000 adult bees, wax comb (with honey and pollen), brood (developing young), and an egg-laying queen. Starting a colony this way can cost between \$70-\$100, but it will become a mature hive very rapidly and be less likely to fail. Second, you may purchase a three-pound 'package' of bees with a queen. Any number of beekeeping operations nationwide will send through the mail a screened wooden box with live bees, costing \$45-\$65. The bees can then be shaken out of the package, and they will establish themselves in the hive. Third, you can capture a swarm that has escaped from another hive. Although not as common as they once were, wild swarms can be obtained in the early to mid-spring (late March, April, and early May). Local beekeeping clubs often have "swarm-call" lists to assist beekeepers in capturing swarms reported in their area, and beginners usually need help with capturing their first swarm. These latter two approaches are more cost effective (virtually free in the latter case), but the bees will need more time for the colony to develop and become productive.

Of course, honey bees have the potential to sting in defense of their hive. The frequency of being stung, however, is much lower than what is commonly believed. If managed properly—using smoke, a hive tool, protective clothing, and gentle manipulation—stings are quite unlikely. If a

beekeeper is stung, localized pain and swelling is a normal reaction and one that should not cause undue concern. Nonetheless, bee venom can be a serious allergen for certain people, with 1 in 200 persons having a true allergic reaction requiring immediate medical attention. Consult with a physician if you have any concerns about being stung.

Table 1. List of individual components of a beehive, with the approximate price and description of each.

Individual Hive Item	Approximate Price (or range of prices)	Description/Purpose
Bottom board	\$10.00	Hive body sits on this and acts as the floor of the hive.
Hive body	\$8.00-10.00	Standard size is 9 5/8 deep. Holds 10 full-size frames. Also called a deep super.
10 deep frames	\$8.50	Full-size frames used by the bees to construct their wax comb.
10 wax sheets	\$7.00	Foundation used by the bees for building their honey comb.
Inner cover	\$8.00	Thin board between top box and outer cover. Helps with ventilation.
Outer cover	\$17.00	Covers the top of the hive. Provides shelter from the elements.
Smoker	\$24.00-30.00	Used before opening a hive to help calm the bees and make them less likely to sting.
Hive tool	\$4.50	Used to pry apart pieces of the hive that have been stuck together with 'bee glue' or propolis.
Veil	\$11.00-25.00	Covers the head and face of beekeeper to prevent stings to these sensitive areas.
TOTAL	\$98.00- \$120.00	
Additional Items		
Bee suit	\$50-150	Complete suits cover whole body to help protect from stings.
Gloves	\$10.00-20.00	May be used to prevent stings to the hands, but they can make it more difficult to manipulate the hive.
Entrance reducers	\$1.00	Minimizes amount of entrance space the bees need to guard and minimizes the flow of cold air in winter.
Queen excluder	\$6.00	Placed below the honey supers to prevent queen from laying eggs in the honey comb.
Feeder	\$4.00-17.00	During times of food scarcity, bees may need to be fed sugar water. There are several types of feeders available.
Supers (assembled with frames)	\$35.00	Any box placed on top of the hive body to give the colony more room. Honey supers are used for producing honey.

RESOURCES**Books**

The Beekeeper's Handbook, by Diana Sammataro and Alphonse Avitabile. Designed for beginners, this book has very nice drawings and diagrams that describe the parts of the hive, what is necessary to get started, how to obtain bees, and general seasonal management. Also discusses bee pests and diseases, an important aspect of modern beekeeping.

First Lessons in Beekeeping, by Keith Delaplane. Introduction to beekeeping with descriptions of necessary equipment, basic biology of the colony, honey plants, and pollination. Good overview of management of a colony in different seasons.

Beekeeping for Dummies, by Howland Blackiston. Designed for beginners with good step by step directions on practical aspects of beekeeping, but limited information on background biology.

Honey Bees and Beekeeping: A year in the life of an apiary, by Keith Delaplane. Instructions for the beginner on setting up an apiary and how to maintain it throughout an entire year. In addition to the book, there are two videos with topics in beekeeping for beginners.

The Hive and the Honey Bee, edited by Joe M. Graham, Dadant & Sons. The ultimate reference book! Very detailed information that is designed for the more advanced beekeeper. In-depth information on honey bee biology, seasonal management, diseases and hive pests, even starting a beekeeping business. Ideal for looking up information on any topic, but not designed to read from cover to cover.

Periodicals

Bee Culture: Monthly Issues, 1 year subscription- \$25.00; TEL: 800-289-7668 or 330-725-6677; FAX: 330-725-5624; WEB: www.beeculture.com

American Bee Journal: Monthly Issues, 1 year subscription- \$24.95; TEL: 217-847-3324; FAX: 217-847-3660; EMAIL: abj@dadant.com

Speedy Bee: Monthly Issues, 1 year subscription \$17.25 , TEL: 912-427-8447; FAX: 912-427-8447; EMAIL: speedybee@bellsouth.net

BEEKEEPING SUPPLY COMPANIES**North Carolina**

Brushy Mountain Bee Farm, 610 Bethany Church Rd Moravian Falls, NC 28654; TEL: 800-BEESWAX (800-233-7929); FAX: 336-921-2681; EMAIL: sales@brushymountainbeefarm.com; WEB: www.brushymountainbeefarm.com

Miller Bee Supply, 11562 North Highway16, Millers Creek, NC 28651; TEL: 888-848-5184;
Customer Service: 336-667-7513; EMAIL: woodnwax@earthlink.net; WEB:
www.millerbeesupply.com

Other states

Mann Lake Ltd. 501 S. 1st St Hackensack, MN 56452; TEL: 800-880-7694; Customer
Service: 218-675-6688; FAX: 218-675-6156; EMAIL: beekeeper@mannlakeltd.com;
WEB: www.mannlakeltd.com

Dadant & Sons Inc. 51 South 2nd Hamilton, IL 62341; TEL: 888-922-1293; WEB:
www.dadant.com

The Walter T. Kelly Company, PO Box 240 Clarkson, KY 42726-0240; TEL: 800-233-
2899; EMAIL: kellybees@kynet.net; WEB: <http://www.kelleybees.com/>

CONTACT INFORMATION

North Carolina State Beekeepers Association

<http://www.ncbeekeepers.org>

North Carolina has approximately 60 county beekeeping associations across the state, which are part of the larger North Carolina State Beekeepers Association (NCSBA). Most of these chapters meet monthly with instructional programs, and many clubs offer new beekeeper classes each year. These local associations serve as valuable resources where experienced beekeepers offer advice and can act as mentors to beginning beekeepers. If you would like some hands-on experience before you start your own hives, offer to help a beekeeper in your area when they are working with their bees.

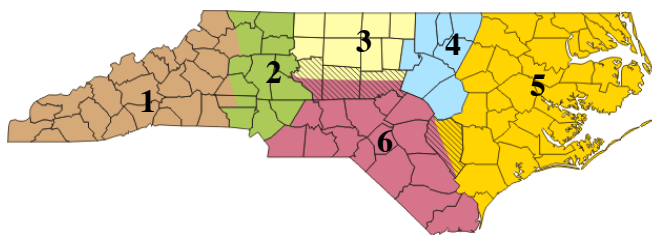
Position	Name	Phone No.
President	Greg Clements	704-846-3784
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2nd Vice President	Buddy Marterre	336-760-0237
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Recording Secretary	Bill Thering	919-735-1983
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1st year director	Janet Shisler	828-628-1758
2nd year director	Jim Williams	919-362-1794
3rd year director	Julian Wooten	910-346-6885
Regional Rep.-Region 1	Edd Buchanan	828-669-8936
Regional Rep.-Region 2	Jerry Isley	336-472-6325
Regional Rep.-Region 3	Judy Pick	919-942-4016
Regional Rep.-Region 4	.	.
Regional Rep.-Region 5	Jimmy Odom	704-588-2999
Regional Rep.-Region 6	Ellis Hardison	910-948-4121
Editor Bee Buzz	Janno Daniel	910-572-1015

North Carolina Department of Agriculture and Consumer Services, Apiary Inspection

<http://www.agr.state.nc.us/plantind/plant/apiary/apiary/>

North Carolina is fortunate to have an active Apiary Inspection program, which is part of the NC Department of Agriculture and Consumer Services (NCDA&CS). There are six regional inspectors across the state who serve as important resources for beekeepers to keep their hives free of diseases and pests. All new beekeepers should contact their regional inspector so that they may register their hives and have them periodically inspected.

POSITION	Name	Phone
Chief Bee Inspector	Don Hopkins	(919) 233-8214
Region 1	Jack Hanel	(828) 298-2419
Region 2	Richard Lippard	(704) 528-9774
Region 3	Don Hopkins	(919) 233-8214
Region 4	Will Hicks	(336) 599-6345
Region 5	Adolphus Leonard	(252) 830-0275
Region 6	Nancy Ruppert	(910) 428-3524

*North Carolina State University Apiculture Program*

<http://entomology.ncsu.edu/apiculture>

The Apiculture Program at NC State University has been a leader in honey bee research, outreach, and instruction. Part of the program's mission is to assist beekeepers by helping to develop and disseminate information about new management techniques to improve colony health and productivity. For further information about the program, contact your local [Cooperative Extension Agent](#).

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The use of brand names in this publication does not imply endorsement of the products or services named or criticism of similar ones not mentioned.



Selection of Location

The first decision the new beekeeper must make is where to put the hive. There are different factors that make a beehive location successful. There are also other questions about location to consider. For one thing, try to choose a location that is as close to your home as possible. There are several reasons for this. The closer the hive is to your house, the more convenient your storage area will be and the less time you'll spend traveling to and from your hive. If they are nearby, you will be able to inspect them more often.

Occasionally, beehives are vandalized by thoughtless people who find a beehive in an isolated area an irresistible target for rock throwing or shotgun blasts. Therefore, having the beehive closer to your home or the home of some other responsible person provides greater security for the colony.

Nectar

You need to make a careful study of available honey plants around a potential hive location. Honey bees get most of their nectar and pollen within a half-mile radius of their hive location. However, they can travel from one to two miles on their collection trips, depending upon the ruggedness of the terrain and the prevailing winds.

Water

Bees, like all animals, need a constant supply of water. It is best if there is a stream or pond in the vicinity of the beehive. A good source of water is especially necessary if your beehive is to be located close to neighbors' homes. Otherwise, the bees may choose your neighbor's water faucet, the children's wading pool, or the bird bath for a source of water. To avoid having your bees become a nuisance, place a tub or pan of water near the hive, and your bees will learn to go only to that safe "watering hole." Make certain that the water source has something in it the bees can land on without danger of drowning, such as cork floats, bark, or layers of crushed rock.

Drainage

There must be some water near the hive, but not too much. There should never be any possibility of the hive having to sit in water. Therefore, look for a spot with good drainage. Keep the hive off the ground using a hive stand or bricks and tilt it slightly forward. This will permit any moisture that may accumulate to run out the front entrance. Leaning the hive slightly forward also makes it easier for the bees to remove dead bees and other waste materials.

Sunlight

When locating your bees, also consider available sunlight. Your hives should have as much sunlight as possible, especially during the winter months. Face your hive toward the south, where the entrance will have the greatest exposure to sunlight and will be protected from the cold north winds of winter. If your location makes it inconvenient to place the hives facing south, try facing them east to catch the morning sun.

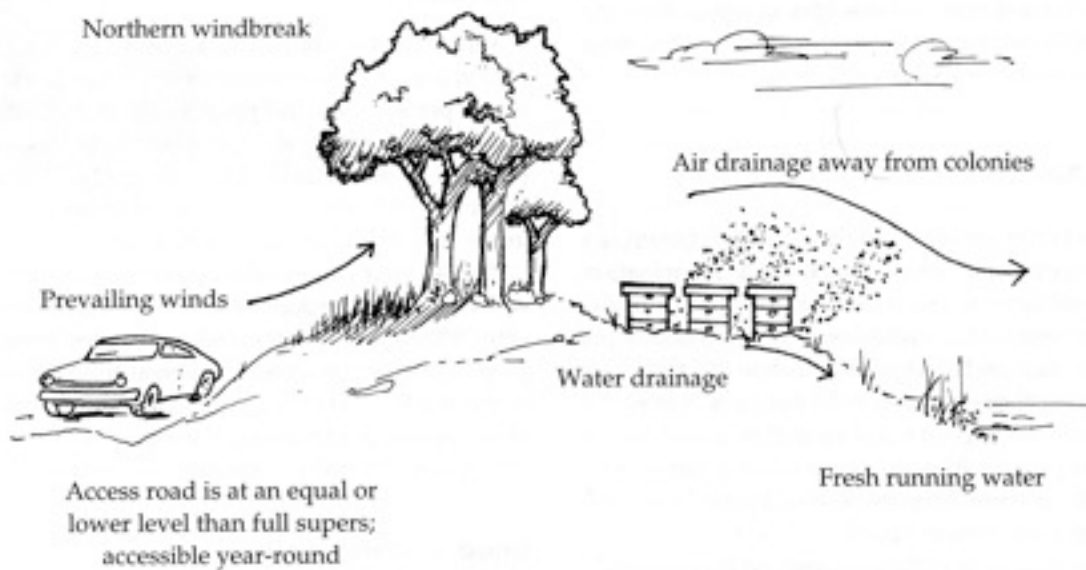
Vegetation

Finally, think about the vegetation immediately around your hive location. Trees to the west or north provide valuable protection from winter winds. You will want to keep the grass and weeds cut around your hive. This will reduce any danger of fire damage and provide good ventilation, which is necessary for the bees to maintain the proper hive temperature.

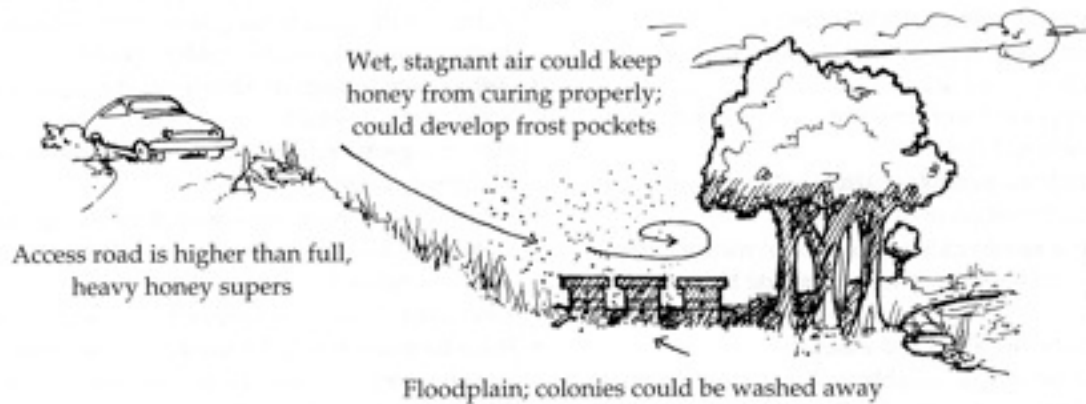
source: Purdue Extension publication 4-H-586-W



Ideal Apiary Site



Poor Apiary Site



Drawing by J. Propst; labeling ©1997 D. Sammataro

2012 Permits to Sell Bees

The following dealers have been approved to sell bees in North Carolina and are permitted to sell or ship bees of the said apiary.

In State Companies Permitted to Sell Bees

Company Name	Address	City	State	Zip Code	Status	Spring Inspection	Phone Number
5 County Beekeepers	117 E Franklin St.	Zebulon	NC	27597	Active		(919) 269-9333
7 Stands Bee Farm	1885 Middle Fork Rd	Hays	NC	28635	Active		(336) 957-4744 / (336) 984-7768
A & J Honey Farm, LLC	3243 S. Chipley Ford Rd.	Statesville	NC	28625			(704) 876-1244
Allen Blanton	1399 Lake Logan Road	Canton	NC	28716			(828) 400-1735
Bee Delight Honey Farm	510 Flower House Loop	Troutman	NC	28166	Active		(704) 450-1703
Beech Mountain	2775 Beech Mountain Rd	Elk Park	NC	28622			(828) 733-4525 / (828) 387-0667
Bell's Bees	2751 Campbell Rd.	Raleigh	NC	27606			(919) 859-6734
Betsey's Bees	1226 Mt. Olivet Church Rd.	Franklinton	NC	27525			(919) 495-1450
Billy R. Boyd	5803 Old Monroe Rd.	Indian Trail	NC	28079			(704) 821-7310
Bolick Honey Farm	2215 Trinity Church Rd.	Concord	NC	28027	Active		(704) 795-3900
Bridges Bee Farm	3345-1 Belaire Rd.	Mooresboro	NC	28114			(704) 473-9599
Bridges Bee Supplies	121 Parkdale Cir	Kings Mountain	NC	28086			(704) 739-6435
Brushy Mountain Bee Farm	610 Bethany Church Rd	Moravian Falls	NC	28654	Active		(800) 233-7929
Bryan Fisher	712 Deaton St	Kannapolis	NC	28081			(980) 521-8642
Busy Bee Apiaries	1201 New Hope Church Rd	Chapel Hill	NC	27516	Active		(919) 942-2006
Carl Chesick, Green Goddess Farm	22 Cedar Hill Road	Asheville	NC	28806			(828) 779-7047
Chris Mendenhall	5703 Midway School Rd.	Thomasville	NC	27360	Active		(336) 442-9835
David Bridgers	118 Wellington Dr.	Wilmington	NC	28411	Active		(910) 686-1947
David L. Pilcher	2224 Hennings Rd.	East Bend	NC	27018			(336) 699-3103
Delton Dial	11034 Rough & Ready Rd	Cerro Gordo	NC	28430			(910) 654-0122
Donnie Smith	599 John Russell Rd.	Raeford	NC	28376			(910) 875-5640
Fourth Creek Honey Farm	232 Antietam Rd.	Statesville	NC	28625			(704) 585-2004
Garry & Shelia Whitley	900 Honeysuckle Lane	Albemarle	NC	28001			(704) 982-0698
Gerry and Libby Mack	121 Hermitage Rd	Charlotte	NC	28207			(704) 953-0565
Gommin Inc.	1945 Davis Mtn Rd.	Hendersonville	NC	28739			(828) 693-1966
Harris Apiaries	10055 Hwy 53 West	White Oak	NC	28399			(910) 988-6227
Holbert Bee Supply	P.O. Box 217	Saluda	NC	28773	Active		(828) 749-2337
Holt's Apiaries	132 Holt's Ln	Siloam	NC	27047	Active		(336) 710-4904
James Smith	600 Oakwood Dr. S.W.	Supply	NC	28462			(910) 842-4731
Jeff Ritchie	3901 Piney Rd	Morganton	NC	28655			(828) 438-1720
KT's Orchard & Apiary	195 Pigeon Ford Rd	Canton	NC	28716			(828) 648-0700 / (828) 279-5614
McCoy Feed & Supply, Inc	4420 NC 24--27 Hwy East	Midland	NC	28107			(704) 888-2298
Mike Bourn	1104 Arbor Drive	China Grove	NC	28023	Active		(704) 857-7699 / (704) 506-5390
Miller Bee Supply, Inc.	496 Yellow Banks Rd.	N. Wilkesboro	NC	28659	Active		(336) 670-2249
Mott Bee Farms	P.O. Box 301	Harrells	NC	28444			(910) 990-0448
Mr. Buzz	535 Marble St.	Raleigh	NC	27603			(919) 368-5217
Old Cypress Vineyard and Apiary	1255 Davis Rd	Garland	NC	28441			(910) 385-4027
Orr Bee Supply	323 Morris Hollow Rd.	Old Fort	NC	28762			(828) 581-4494

Plank Road Apiary	3350 S. Plank Rd	Sanford	NC	27330	Active	(919) 776-9517
Rabbit Creek Bee Company, LLC	260 Corbin Cove Drive	Franklin	NC	28734		(828) 634-1233
Rayon Locklear	2883 South Duffie Rd.	Red Springs	NC	28377		(910) 843-5561
Revis Russian Apiaries	PO Box 2520	Marion	NC	28752		(828) 652-3524
Richard John Wright	P.O. Box 808	Mt Gilead	NC	27306		(910) 439-1879 / (910) 975-3355
Richard Williams	1207 Maple Ridge RD	Wilmington	NC	28411		(910) 231-1755
Rick Coor	169 Forest Knolls Rd.	Goldsboro	NC	27534		(919) 778-0210
Robert M. Dennis	1040 High Meadows Drive	Concord	NC	28025	Active	(704) 721-5630
Robert E. Baucom	2518 Hamiltons Cross Road	Marshville	NC	28103		(704) 624-5116
Robert W. Jones	593 Bailey RD	Coats	NC	27521		(919) 894-7361
Ronnie Moose	152 Crater Rd.	Harmony	NC	28634		(704) 539-4757
Sanford Toole	90 Sawmill Rd, West	Pinehurst	NC	28374		(910) 295-6676
Silver Spoon Apiaries	P.O. Box 4486	Wilmington	NC	28406		(910) 352-7868
Squeaky Tree Honey Farm	133 Squeaky Tree Lane	Statesville	NC	28625		(704) 872-0038
Tate's Apiaries	2241 Union Cross Rd.	Winston-Salem	NC	27107		(336) 788-4554
Taylors Miss Bee Haven	7610 Buckhorn Rd	Hillsborough	NC	27278	Active	(919) 302-4076
The Carolina Bee Company, LLC	237 Jason Way	Youngsville	NC	27596		(919) 728-0827
Tindal Bees	24164 Cedar Ridge Lane	Albemarle	NC	28001		(704) 985-6236
Triad Bee Supply	4062 Evergreen Dr.	Trinity	NC	27370	Active	(336) 475-5137
Triple S Bee Farm	3886 Freedom Way	Hubert	NC	28539		(910) 787-2577
Troy Poovey	3236 Sipe Rd	Newton	NC	28658		(828) 428-2447
Vince Applebee	24300 NC Hwy 8	Denton	NC	27239	Active	(336) 859-3895 / (336) 250-9582
Wayne Hansen	8004 Southway Rd	Charlotte	NC	28215	Active	(704) 536-4805
WG Bee Farm	P.O. Box 4563	Eden	NC	27289		(336) 635-5821 / (336) 616-7044
Wild Mtn. Apiaries	875 Will Arrington Road	Marshall	NC	28753		(828) 689-4095

Out of State Companies Permitted to Sell Bees

Company Name	Address	City	State	Zip Code	Status	Health Certification	Phone Number
Bob Binnie	PO Box 15	Lakemont	GA	30552	Active		(706) 782-6722
Gardner's Apiaries / Spell Bee LLC	510 Patterson Rd	Baxley	GA	31513			(912) 367-9352
Glenn Apiaries	PO Box 2737	Fallbrook	CA	92088			(760) 728-3731
Golden Delight Honey, LLC.	7366 Waxhaw Hwy.	Lancaster	SC	29720			(225) 803-5406
H & R Apiaries	2700 South Macon Street Ext	Jesup	GA	31545			(912) 427-7311
Hardeman's Apiaries	P.O. Box 214	Mount Vernon	GA	30445			(912) 583-2710
Kona Queen Hawaii, Inc.	P.O. Box 768	Captain Cook	HI	96704	Active	+	(808) 328-9016
Rossman Apiaries, Inc.	3364-A GA Hwy 33 North	Moultrie	GA	31768			(229) 985-7200
Rufer's Apiaries, Inc.	PO Box 394	HempHill	TX	75948			(409) 625-1544 / (612) 325-1203
Strachan Apiaries	2522 Tierra Buena RD.	Yuba City	CA	95993			(530) 674-3881
The Queenery	124 Pinenut Ln	Bogart	GA	30622			(706) 247-2575
Walter T. Kelley Co.	PO Box 240	Clarkson	KY	42726			(800) 233-2899

It is unlawful to market queens, packages, nucs or hives before the Permit to Sell Bees in North Carolina has been issued. For North Carolina residents, a permit is not required for : (1) the sales of less than 10 bee hives in a calendar year; (2) a one time going out-of-business sales for less than 50 bee hives, or (3) the renting of bees for pollination purposes or the movement of bees to gather honey.

Information or application forms for the Permit to Sell Bees in North Carolina are available by writing: Attn: Glenn Hackney, NCDA&CS, 1060 Mail Service Center, Raleigh, NC 27699, calling (919) 233-8214, contacting your local county extension office, or accessing the following site:

<http://www.ncagr.gov/plantindustry/plant/apiary/sellbees.htm>



One of the more common means of starting a new beehive is by ordering live honey bees from a commercial vendor. Such 'packaged' bees typically contain about 12,000 live adult workers (approximately 3 pounds), one newly mated queen bee, and an inverted can of sugar water, all contained in a wooden box with screened sides (Figure 1).

When installing a package of bees, you should wear a veil and take appropriate precautions to prevent bees from crawling up your pant legs. You also will need a hive tool, a smoker, a small nail, a spray bottle filled with sugar syrup, and one or more gallons of sugar syrup to feed the new colony. To make the syrup, mix warm water with granulated or powdered sugar in a 1:1 ratio and mix thoroughly until all of the sugar is dissolved.

Step 1. Pick up your bees from the post office or other place of delivery. Carefully look over the package for any cracks or tears in the screen, and inspect the bees to make sure they are alive and in good health (it is normal to have about one inch of dead bees in the bottom of the box). If there is an excessive amount of dead bees, it may be an indication that they have been overheated during shipping, in which case you should contact your package provider. Spray the bees with sugar syrup; be generous, but be sure not to drown the bees!

Step 2. Place the package in a cool, dark place to allow the bees to 'rest' for several hours before installing them into a hive. Make sure the bees are not exposed to excessive heat or cold, loud noise, or



Figure 1. A pallet of 3-lb packaged honey bees.

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unusual vibrations. Periodically spray the bees with sugar syrup (1 part sugar, 1 part water) until you are ready to install the bees into a hive. This is a good time to make sure all of your hive equipment is ready.

Step 3. When your equipment is set up and you are ready to install the bees into the hive, feed the bees again with sugar syrup and carry the package (by holding the wooden sides) into the apiary. Be sure to keep your hands away from the screened sides of the package to avoid getting stung through the screen. Place the package on the ground in a shaded area.

Step 4. Remove three or four frames from the center of the brood chamber to create a space in the hive for the bees (Figure 2).



Figure 2. Prepare a space in the hive in which to shake the bees.

Step 5. Spray the bees again with sugar syrup.

Step 6. With the hive tool, remove the wooden panel from the first package of bees (Figure 3a). Gently remove the tin feeder and queen cage from the hole in the top of the box (Figure 3b). Shake bees from the outside of the queen cage and inspect the queen to ensure that she is still alive and healthy. Place the queen cage in the shade (Figure 3c). Replace the wooden panel over the hole to prevent bees from escaping (Figure 3d).

Step 7. Immediately before installing the bees into the hive, firmly knock the package on the ground once to make the bees drop to the bottom of the box. Be sure to hold the wooden lid in place while doing this.

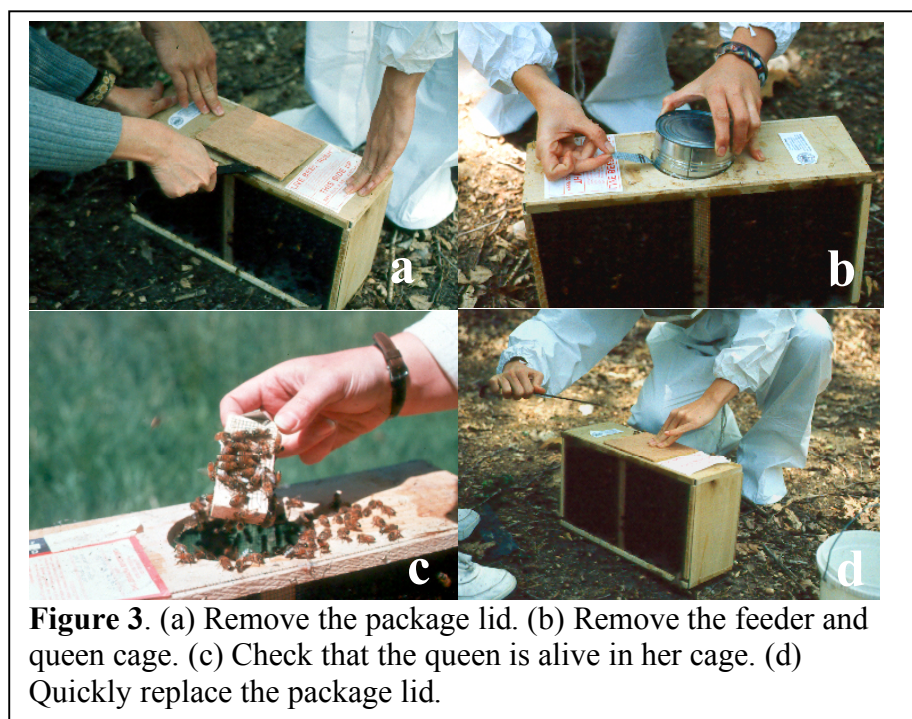


Figure 3. (a) Remove the package lid. (b) Remove the feeder and queen cage. (c) Check that the queen is alive in her cage. (d) Quickly replace the package lid.



Figure 4. Shake the bees into the hive.



Figure 5. Let the remaining bees enter the hive.



Figure 6. Replace the frames.



Figure 7. Gently remove the cork on the *candy* end of the queen cage.

Step 8. Next, remove the wood panel and quickly invert the package over the hive body. Firmly and vigorously shake the bees into the space in the hive (Figure 4). It might be necessary to shake the package several times. Don't worry if there are a large number of bees flying around; they are largely "confused" and therefore not defensive, and they will eventually settle down and enter the hive.

Step 9. Prop the package in front of the entrance of the hive so that any remaining bees in the package can crawl into the hive (Figure 5).

Step 10. Gently return the frames to the hive after the workers have dispersed on the bottom board (Figure 6), being sure not to crush any bees.

Installing the queen

1. Remove the plastic cap from the long side of the queen cage with the white sugar candy (Figure 7). The bees will eat the candy and eventually release the queen within one or two days. This time-release method allows the bees to become accustomed to the queen, minimizing the chance that the bees will reject the queen. *Do not remove the cork on the end without the candy!*

2. Place the queen cage *candy side up* between two center frames of the hive (Figure 8). Make sure the cage is secure between the frames so that it does not fall to the bottom of the hive.

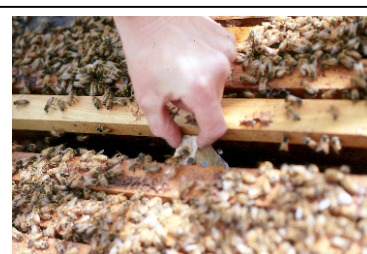


Figure 8. Secure the queen cage, candy-end up, in between the center frames.

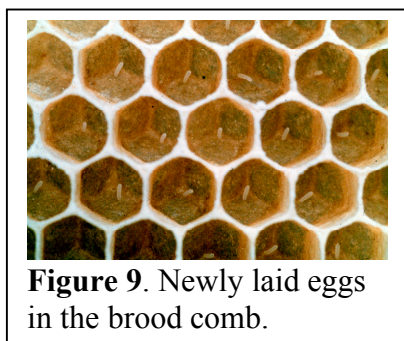


Figure 9. Newly laid eggs in the brood comb.

3. Feed the new colony with sugar syrup. *It is critical that the bees have an ample supply of food at all times, particularly before there is a sufficient supply of honey stored in the colony.* Replace the inner cover and lid.

4. Inspect the colony 5 days after installing the package to ensure that the queen is alive and has been released. Inspect the colony again after another 5 days to verify that the queen has begun laying eggs. Eggs appear as small grains of rice standing up in the center of cells (Figure 9). If necessary, add sugar syrup again at this time.

Troubleshooting

Sometimes, problems may arise while starting a new hive from packaged bees. Here are some common issues, and some potential solutions.

1. “My queen was not accepted by the workers!”

- Occasionally, the workers will not accept the queen either before or after she is released from her cage. You will know this has occurred if the queen is dead in the cage or missing from the hive. If this is the case, you may either:
 1. Insert a replacement queen from a commercial vendor, or
 2. Unite the hive to an existing colony by:
 - Placing a single sheet of newspaper on the top of the established hive, making sure that it is completely covered;
 - Poking numerous small holes into the newspaper with your hive tool;
 - Placing the hive body of the queenless colony on top of the hive body with the newspaper;
 - The bees will chew through the paper and unite with the queenless colony.

2. “The bees are not building enough wax comb!”

- Feed!!! Feed!!! Feed!!! Bees will build the wax comb in response to a need for it. Thus they require ample sugar syrup to secrete enough wax. Even when they are well fed, they may still take several weeks to furnish ten frames with wax comb.

3. “The queen is present, but she is only producing drone brood!”

- On occasion, a queen is not properly mated or has depleted her sperm stores. Thus she is only able to lay unfertilized eggs, which will develop into drones. As drones do no work in a hive, a colony consisting of only drones will quickly die out. You can identify a drone-laying, or ‘failing’, queen by the presence of a majority of drone brood throughout the colony. Drone brood is larger than normal worker brood and protrudes from the surface of the comb. If you find the queen to be a drone layer, the only solution is to replace the queen by one of the two methods described above.



Buying Queen Bees

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The queen bee is essential for the proper functioning of a bee colony. Re-queening hives on a regular basis, every one or two years, is a popular and positive method of maintaining a uniformly high productive level in the apiary while keeping potential problems to a minimum.

Why Queens Should Be Replaced

Queens are able to live for several years but their commercially productive life is only one to two years. Their ability to lay large numbers of worker eggs diminishes with age and the colony will not be as productive.

If colonies are left to their own means, a large percentage will decline from the standards listed below. This will occur over a relatively short period of time, from 6 to 18 months.

A queen bee should be replaced if:

- the bees in a hive are very aggressive
- the colony is not performing as well as other hives in the apiary, and disease has been ruled out as a cause. In this case, replacing the queen should rectify the problem.

Swarming is an inherent tendency as well as an environmental and seasonal problem. Young queens are less likely to swarm than older queens.

How to Choose Replacement Queens

Queens vary in their genetics, and these variations are expressed through their worker progeny.

Queen bees are bred for their offspring's:

- honey-gathering potential
- docility and temperament
- disease resistance
- reduced swarming tendency
- specific colour – this last characteristic is an expression of the beekeeper's personal preferences rather than an economic consideration.

Different races of queens are often available – primarily Italian, Caucasian and Carniolan. While no single race is superior to any other, different strains within the races show a wide variation in genetic traits. Don't be afraid to buy queen bees from more than one supplier; in fact, this is a good practice.

The selection of queen bees is one of the main ways that beekeepers can achieve their stock breeding aims.

Obtaining New Queens

New queens can be obtained by breeding them yourself, or from commercial suppliers.

Rearing your own queens

Rearing queen bees is a specialist job. It takes a significant level of experience and resources to produce good quality mated queens. However, rearing your own queen bees can be a lot of fun and can add an extra interest to your beekeeping.

Buying from a commercial supplier

Listed below are some points on when to buy, where to find a supplier, types of queens, costs, age to buy, care and introduction of the new queen.



Orange County Beekeepers Association

Bee School

Buying Queen Bees

The demand for queen bees at certain times of the year may be high, and some queen bee producers may be heavily booked. It is necessary, if ordering any quantity, to do so a number of months before they are required.

When to buy new queens

Although queens are available from September each year it is advisable not to buy new queens until October, then any time through to early autumn.

Queen bees are not usually available during late autumn or winter, primarily due to low drone numbers, low temperatures, and poor nutrition in the form of nectar and pollen, but queen production is possible through much of the year.

Queen bee suppliers

Beekeepers producing queen bees for sale advertise in any one of a number of beekeeping magazines, journals or newsletters.

Types of queens

Queen bees are occasionally advertised as 'untested queens'. This indicates a normal production queen, and these account for most of the queen bees sold. The queen will be mated and ready to begin laying in its new colony.

Breeder queens and instrumentally inseminated queens are sometimes available, but these are too expensive for production hives. They are primarily sold to those beekeepers who wish to rear their own queen bees. Offspring of these queens should exhibit a uniform type of bee.

Costs

Costs vary to some degree: prices range from \$15 to \$25 for small numbers of queen bees. The larger the quantity ordered, the cheaper per queen the price becomes.

It is important not to choose queens on price alone, and do not expect every queen bee to make you a fortune. Expect 10% to fail for one reason or another soon after being introduced to the new colony.



Age

From the hatching date of the queen cell, mature queens are caught and caged for mailing on a variety of time scales. You should expect to pay more for a 28-day old caught queen than for a 21- or 14-day caught queen due to the longer use of the mating nucleus colonies for the older queen.

Research note

Research has shown that the age of the queen when removed from the mating nucleus colony has a significant impact on the survival of that queen at 2 and 15 weeks after introduction into another colony.

14 days after introduction to the new colony:

There were low survival rates of queens caught at 14 days compared with 21 days of age.

At 21 days 82.5% of the queens survived.

This further improved to an average of 90% survival for queens caught at 28 days of age.

The benefits of older caught queens (28 days) are further illustrated after 15 weeks. Losses of queens caught at 21 days can be expected to be 30.5% compared to losses of queens caught at 28 days to be 21%.

This research clearly indicates that queens caught at 28 days for introduction into another colony are better in the long term as far as survivability is concerned.

Care of the Mailing Cage

Queen bees, if bought from a queen bee supplier, will come by post with the rest of the mail. They usually arrive in good condition, Australia Post regularly handles queen bees posted around the country and overseas.

Make sure your letterbox is cool and ant-free or, better still, wait for the postman to arrive.

If the queen is not being introduced straightaway, store the mailing cage with the queen inside in a cool area of the house away from pest strips, fly sprays, mothballs, direct sunlight, cold draughts and ants. In hot weather place one drop only of water on top of the wire gauze of the cage when the queen arrives in the mail. The queen will keep like this for some days.

Along with the queen, the mailing cage will contain a number of worker bees, known as 'attendants' or escorts. In one end of the cage will be a plug of queen candy, composed of irradiated honey and icing sugar.

Removing the old queen

It is vital to remove the old queen from the colony which is being re-queened. Failure to find and remove the old queen will probably result in the failure of the newly introduced queen.



Slow transition to the new queen

When introducing the queen into the colony from the mailing cage, do not remove the cork in the end that the bees occupy.

Remove any cork or closure in the end with the queen candy.

Place the mailing cage between frames of brood in the middle of the brood nest with the candy end slightly upwards, so that if an escort worker bee dies, this will not block the exit of the cage.

It may take a few days for bees in the hive to remove the plug of candy and release the queen. This time lapse allows the hive population to become accustomed to the new queen's presence.

It may take up to a week for the introduced queen to begin laying eggs. For this reason, once you have introduced a mailing cage to a colony, it is essential to leave the colony alone for at least a week before you inspect its progress. The presence of eggs will indicate a successful introduction.

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (October 2009). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of Industry & Investment NSW or the user's independent adviser.

Job number 9265 PUB09/108



Beekeeping Insect Note 15

Reducing the Likelihood of Stings During Outdoor Activities

Prepared by:

S. Bambara, Extension Specialist

Dated 3/93

Placed on the Web 3/95 by the Center for Integrated Pest Management

The advent of warm weather is the time for outdoor fun and yard work. Picnicking, swimming, golfing, tennis, gardening and lawn mowing are just a few of the activities people engage in when the weather is pleasant.

But no one likes to be stung by an insect and for the 3-5 percent of the population who are allergic to an insect sting, such an event could be life-threatening. There are only a few types of insects which cause most of the problems. With the proper knowledge and precautions, the likelihood of being stung can be greatly reduced.

Social wasps such as yellow jackets, hornets, and paper wasps can be very sensitive to vibrations and very defensive of their nests. These nests, made of "paper" can be located underground, hanging from trees, or under protected areas. Though the nests are started anew each spring, the populations of insects build to substantial numbers by mid-summer. These nests should be avoided or eradicated with an aerosol hornet and wasp pesticide if located in a troublesome area. These insects are generally not aggressive unless they or their nests are threatened.

Most types of bees are not highly defensive and mean no more harm than does a fly. Notably, however, are the social bees such as honey bees and bumble bees which can be quite defensive around a nest, but under other circumstances have no desire to sting.

During picnicking, hiking, or other activities, you may be at greater risk to be stung as you place yourself in greater proximity with insects. Avoiding nests, being aware, and remaining calm are your best strategies. To help avoid being stung, the following suggestions should be useful:

- When hiking, wear boots or proper footwear.

- Avoid perfume, cologne, hair spray, suntan lotion or other fragrances that might attract curious insects.
- Wear dull tan or white clothing which is not baggy and which could trap an insect inside.
- Standard repellants are not effective against stinging insects.
- When picnicking, keep all food covered except during mealtime (this applies to sweets and meats). Pay special attention to open soft drink containers and glasses to be sure there are no "visitors" on or in the vessel before you take a drink.
- Do not eat or rest too near trash bins. Food debris will be a major attraction to some of these insects, especially in autumn.
- If an insect lands on you or your food, do not become alarmed. They are only investigating or foraging. Blow or gently brush the insect away. DO NOT swat or wave at the insect. Slow movement is best.
- Scout out the area for nests or potential problems before you choose that "perfect" spot to picnic or rest.

NOTE: These insects are beneficial either as pollinators (bees) or in consuming other insects. Do not destroy them unnecessarily. They will not sting without cause. If you are stung, the best treatment is to remove the stinger (if present) and apply an ice pack. If you are allergic to a particular stinging insect, carry an epinephrine kit with you or have immediate access to one. See your doctor!